

## ABSTRACT OF DISCLOSURE

A mechanism and method are provided for self-canceling noise generated in a UWB receiver and for providing multi-mode operation for the receiver. Noise is canceled by generating a first set of wavelets in a same phase as an incoming signal, and a second set of wavelets with an opposite phase as the incoming signal. The received signal and the generated wavelets are mixed and the result integrated such that the integrated output tends to zero. The multiple modes of operation allow the receiver to process multiple types of waveforms. The modes may be chosen by a user-selected switch, a waveform-detection based switch, or the like.